

REMARKS

This application has been carefully reviewed in light of the Office Action dated June 26, 2003. Claims 28 to 53 are pending in the application, of which Claims 28, 42 to 44 and 53 are independent claims. Claims 28 to 32, 35, 37 to 38, 42 to 44 and 53 have been amended. These amendments are supported in the specification at, at least, page 5, lines 13 to 15, page 11, lines 23 to 26, and Figure 3A. As such, no new matter has been added. Applicant respectfully requests favorable reconsideration and allowance of the present application.

Claims 28, 30 to 34, 38, 39, 41 to 48, and 53 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,631,988 (Swirhun); Claims 29, 37, 40, and 49 to 52 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,631,988 (Swirhun); Claim 35 was rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,631,988 (Swirhun) and further in view of U.S. Patent No. 5,774,614 (Gilliland). Reconsideration and withdrawal of the rejections is respectfully requested.

The present invention relates to an optical wiring device for optically connecting electronic equipment, boards in electronic equipment, or apparatuses to each other. One aspect of the present invention lies in the feature that an optical transmission means and an optical conversion device are fixed such that the optical transmission means and the optical conversion device are optically coupled. In this way, the optical wiring device achieves enhanced reliability. Another aspect of the present invention lies in the feature of an electric connecting portion. The electric connecting portion is detachably connected to the optical conversion device, and is physically configured to include a plurality of recessed couplers and a plurality of pins that enables the optical wiring device

to be coupled to an external electric element.

With specific reference to the claims, Claim 28 recites an optical wiring device comprising an electric connecting portion, wherein the electric connecting portion comprises a plurality of recessed couplers and a plurality of pins for connecting an external electric element with the optical wiring device, optical transmission means for transmitting an optical signal, and an optical conversion device that conducts an optoelectric conversion. The optical conversion device comprises at least a surface optical device that is disposed between the electric connecting portion and the optical transmission means, wherein the optical transmission means and the optical conversion device are fixed such that the optical transmission means is optically coupled to the optical conversion device, and wherein the electric connecting portion is detachably connected to the optical conversion device.

Independent Claims 42, 43, 44 and 53 also define optical wiring devices that correspond generally to Claim 28.

Applicant respectfully submits that the applied art does not disclose or suggest at least the above-discussed features of independent Claims 28, 42 to 44 and 53. In particular, the applied art is not seen to disclose or to suggest at least the feature that the electric connecting portion comprises a plurality of recessed couplers and a plurality of pins for connecting an external electric element with the optical wiring device, wherein the electric connecting portion is detachably connected to an optical conversion device, which in turn is fixed with an optical transmission means.

Swirhun relates to a parallel optical interconnect. Swirhun teaches that an optoelectrical device array 110 is monolithically formed on a semiconductor chip 104 disposed on a dielectric substrate 90 of an optoelectronic board 101. (Swirhun, Col. 4,

lines 53-56). Swirhun also teaches that a plurality of optical fibers 135 are embedded in an optical fiber connector 150 and that the optical fiber connector can easily be attached or detached from the optoelectronic board. (Swirhun, Col. 4, lines 9-12; Col. 8, lines 13-14). Thus, in Swirhun, the optoelectrical device array 110 and the optical fiber connector 150 are not fixed.

Moreover, in one embodiment illustrated by Figure 3, the optoelectronic board is mounted to a twenty-pin package 200. Thus, in Swirhun, the package 200 is not detachably connected to optoelectrical device array 110. Moreover, the package 200 is not configured as a plurality of recessed couplers and a plurality of pins for connecting an external electric element with the optoelectrical device array 110.

It is therefore respectfully submitted that Swirhun is not seen to disclose or suggest an electric connecting portion that comprises a plurality of recessed couplers and a plurality of pins for connecting an external electric element with the optical wiring device, wherein the electric connecting portion is detachably connected to an optical conversion device, which in turn is fixed with an optical transmission means.

The remaining art applied against the claims is not seen to supply what is missing from Swirhun. Accordingly, based on the foregoing amendments and remarks, independent Claims 28, 42 to 44 and 53 are believed to be allowable over the applied references.

The other claims in the application are each dependent from the independent claims and are believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

No other matters being raised, it is believed that the entire application is fully in condition for allowance, and such action is courteously solicited

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Respectfully submitted,


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